State of Nevada
Department of Information Technology

Technology Investment Request (TIR) Instruction Guide

LARGE

Produced by
Department of Information Technology
Planning and Research Unit

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INTRODUCTION

Is This the Right Form For You?

This Instruction Guide provides the information necessary to complete the Technology Investment Request (TIR) - Large document. It should be used in conjunction with the TIR Large template.doc and the TIR Large worksheet.xls.

Use this document to justify all Information Technology (IT) projects where the **total cost of ownership** will be more than **$250,000**. Total cost of ownership is defined as the cost over four years including study, development, implementation and ongoing costs. These are detailed in the Cost section of this TIR. Types of IT projects include:

- Acquisition of vendor software
- Software development projects
- Major enhancements to existing systems

All projects require a functional and system requirements definition. If you are using the TIR Large to acquire and implement vendor software or to justify a transfer system or a software development project, attach a copy of your detailed requirements documentation. You must develop detailed requirements prior to moving into the development and implementation phases of the project. If these have not yet been done, also submit a Technology Study Request (TSR) for the detailed requirements and make note of that request in Appendix 1.

If you anticipate that the project will include the study phase *and* the development and implementation phase within the biennium, you should complete both a TSR and a TIR Large to give a complete picture of your project and to serve as a budget placeholder.

Projects in the study phase are those where you are either:

- Requesting funding to conduct a functional and system requirements study (using the Technology Study Request form); or
- A functional and systems requirement project is already in process; or
- Requesting a different type of study that may result in a new IT project.

If you do submit a TIR Large as a budget placeholder, you will need to submit an updated TIR upon completion of the functional and system requirements study, reflecting the updated costs.

If you have any questions or need assistance in completing this Technology Investment Request (TIR) - Large document, please contact the DoIT Planning Unit at (775) 684-5800.

INSTRUCTIONS

A Cover Page

A.1 Project Title

Include the name of the project.

A.2 Submittal Date

Provide the date on which this TIR Large is being submitted.

A.3 Department Name

Provide the name of the department that is submitting the request.

A.4 Subgroup Name

Provide the name of the subgroup, if any (Agency / Section / Bureau / Unit / etc.)

A.5 Project Summary

Provide a brief, high-level summary that outlines the expected outcome(s) of this request.

A.6 Contacts

Identify the people DoIT can contact for clarification or additional information when reviewing this request.

B Table of Contents

The Table of Contents is automatically generated from information within the template. Update the Table of Contents by placing the cursor in the Table of Contents and pressing F9 when you have completed filling in the template.

C Business Program

Describe the business program that this project will support.

C.1 Business Program Background

Provide background information such as: what service is provided, who are your customers, how the service is administered, how long it has been in existence, what technology (if any) is being used, etc.

C.2 Business Program Objectives & Goals

Describe the main objectives and goals of your business program.

C.3 Business Program Issues & Opportunities

Describe any problems presented by the current business situation along with planned changes or enhancements.

Identify which of these are driving your request for new/enhanced technology.

C.4 Business Program Mandates and Requirements

List and briefly describe any external factors that are driving this request. Consider:

- Changes in NRS and NAC
- Federal requirements
- Recent audit findings

C.5 Business Program Partners & Customers

Identify all entities that your business program interacts with (shares, provides or receives information from) both internal and external. Consider:

- Citizens
- Businesses
- Third party administrators & other vendors
- Local governments
- Other state agencies

D Existing Situation – "As Is" Environment

Explain the current technology, processes and issues relevant to this project, as well as their current strengths and their weaknesses.

Include a discussion of current staffing and procedures.

Identify specific hardware, software and network inadequacies.

If the DoIT Planning Unit has performed a Technology Outlook, briefly describe the recommendations that support this project and include the Technology Outlook as an attachment to this document.

E Proposed Changes – "To Be" Environment

Explain the technology and processes that will be modified or implemented as a result of this project. Describe how the new system or technology will address current problems.

F Functional & System Requirements

Briefly describe the functional requirements for the new system. Include your detailed Functional and System Requirements Documentation as Appendix 1.

G Proposed Solution

G.1 Overview

Provide a brief overview of the proposed solution.

G.2 Acquisition/Development Approach

Describe how you intend to develop or acquire the new system or technology and why that approach was chosen.

Typical approaches include Commercial Off the Shelf (COTS) systems, COTS with modifications, transfer systems from other states or local governments, custom design & development, outsourcing, etc.

Describe the strengths and weaknesses of the proposed solution.

G.3 Architecture, Technology & Equipment

Describe the system architecture, hardware, software and communications that the new system or technology will require.

Identify any DoIT infrastructure such as the server farm, security, web hosting, the State Silvernet communications network, state phone system, etc. that the new system or technology may use.

Identify any unique infrastructure requirements, such as electronic payment hosting, special security requirements, etc.

Provide a high-level connectivity diagram in Appendix 2.

G.3.1 Statewide Standards

Identify whether the new system fits with existing Statewide technical standards. Refer to the Policy and Standards section of DoIT's home page, http://psp.state.nv.us/psp.htm, for current standards.

G.3.2 Fit with Existing Technical Environment

Identify whether the new technology will work within your existing technical environment.

If not, please describe any planned upgrades to desktops, servers or Local Area Networks (LAN) at your facility to support this project, and include them in the cost schedule.

If these upgrades are not part of this TIR, describe how you are planning to handle them.

G.3.3 Wide Area Network Connectivity

Identify whether your current Wide Area Network connectivity is adequate to support the new technology.

If not, please describe your planned upgrades to Wide Area Network (WAN) communications and include them in the cost schedule.

If required upgrades are not part of this TIR, describe how you are planning to handle them.

Identify who you contacted at DoIT for assistance.

G.3.4 System Hosting

Describe where you intend to host the new technology.

If this will be a new application hosted at the State's computer facility (either mainframe or server farm), identify who you contacted to determine your facility needs and provide you with cost information.

If you intend to host the new system somewhere besides the State's computer facility, describe your plans for this.

Regardless of where the technology will be hosted, include appropriate costs in the cost schedule.

G.4 Impact on Existing Systems

In addition to the impacts you have outlined in section G.3, describe the impact on the current environment and any enhancement or improvements that may be necessary to support the new system or technology.

Describe any data conversion or migration requirements, and any required automated interfaces. Describe the strategy, resources and estimated implementation time required.

Describe any additional equipment necessary to support the new solution, such as new PCs for field offices.

Consider all business partners identified in Section C.5, Business Program Partners & Customers that may be impacted by this project.

G.5 Impact on People

Describe the impact the new system will have on people when the system is operational.

Define the number of existing (FY02-03 Base) Full Time Equivalent (FTE) positions that will be working on the project. Partial FTEs can be shown for people who are devoted to the project part time. Identify any new permanent staff as FTEs that will be required to support the system and their role in the project.

Identify whether existing staff is qualified to support and operate the new system.

If additional staff is required outside your agency, identify the source of the staff (DoIT, contractor etc.) In describing the impact consider:

- System users, both internal and external
- System administration personnel
- Business analysis (including ad hoc report generation)
- Software maintenance & upgrade support
- Technical support personnel for applications, database, rules management, reports, web page etc.
- Infrastructure support personnel

G.6 Impact on Existing Processes

Describe the impact of the new system on your existing business processes. In describing the impact, consider:

- Opportunities to streamline business processes offered by the new technology
- Changes to NRS, NAC, etc. required to implement improved business processes
- Impacts to the organization's policies, procedures, standards, staffing, costs and funding

If a business process assessment has been done to identify potential improvements include it as an appendix.

G.7 Impact on Other Entities

For projects that affect other entities, such as other state agencies, local governments, federal agencies, business partners etc. identify:

- What entities will be affected

- Whether your agency has discussed technical and operational requirements the new system will place on them
- Whether your agency jas discussed requirements of staff during development and during ongoing operations with entity management
- Whether you have begun to coordinate with each impacted entity

G.8 Security

Describe any confidentiality requirements and the security measures that must be taken to protect the integrity of the data and the physical safety of the equipment.

Identify if your current security environment will support the new technology.

If not, describe your planned security upgrades, and include them in the cost schedule.

G.9 Electronic Records Archiving

Describe the data retention requirements for this business program and what, if any, records must be electronically archived.1

G.10 Training

Identify any training required and the groups(s) to be trained. Describe the strategy, resources and timing required to implement training. Include technical training as well as end user training in the cost schedule.

G.11 High Level Project Organization, Management & Schedule

Describe the high-level activities and deliverables for this project. Include estimated elapsed time for various stages of the project and any mandated compliance deadlines.

Identify the person who will be your technical project manager, and include them in the cost schedule.

Do you intend to ask DoIT for Technical Project Oversight and Quality Assurance? If yes, include the associated costs in your cost schedule.

If existing agency personnel will be used on the project, describe how their current workload will be adjusted to free up time for the project.

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[1] For additional information on electronic records archiving requirements, contact Nevada's Electronic Records Archivist in the State Library & Archives division of the Nevada Department of Cultural Affairs.

Describe your agency's experience in developing and implementing projects of similar size and complexity.

G.12 Alternatives Considered

Describe other solutions that were evaluated and explain why they were rejected. Include their strengths and weaknesses.

If "do nothing" is an alternative, explain the implications of doing nothing and why this option is unacceptable.

H Benefits to the Public

Describe the benefits the new system or technology will have for citizens and/or businesses and for the agency's customers. Include:

H.1 Accountability

To what extent will the new system make your agency more accountable to citizens?

H.2 Access

To what extent will the new system enable greater public access to information?

H.3 Ease of Use

To what extent will the new system make your agency's services easier to use?

H.4 Convenience

To what extent will the new system make your agency's services more convenient?

H.5 Quality

To what extent will the new system enhance the quality of the services your agency delivers?

H.6 Other

Describe any other benefits to the public that this system or technology will deliver.

I Benefits to the State

Describe the benefits the new system or technology will have for State government. Include:

I.1 Operational Efficiency & Productivity

To what extent will the new system or technology improve the agency's internal operational efficiency and/or productivity?

I.2 Financial

To what extent will the new system or technology increase revenue to your agency? Are there opportunities for cost avoidance?

I.3 Functional Integration

To what extent will the new system or technology eliminate redundancy or improve consistency in business processes?

I.4 Other

Describe any other benefits to the State that this system or technology will deliver.

J Risk Assessment

Regardless of how well a project is planned in advance, there are often areas of risk that cannot be avoided, due to the nature of the project. Identifying potential risks and developing risk management plans will help project sponsors and project managers act quickly in the event of a problem. Additionally, projects with multiple areas of risk will require more assertive and high level oversight than projects with less risk.

Determine whether each of the following topics presents a risk to your project. For each yes answer, briefly describe the risk and your plans to manage it.

J.1 Project Management & Oversight

Do you anticipate any problems in acquiring an experienced project manager and developing an appropriate level of project oversight?

J.2 Political Ramifications

Are there any issues or stakeholders that make this project highly sensitive to political ramifications?

J.3 Cost

Will the system support large dollars or significant transactions such that business or government processes would be severely impacted if the transactions were not processed timely and accurately?

J.4 Complexity

Is the project highly complex with multiple requirements from many different users or extensive integration of systems, or exchange of

information or interfaces? Are there any other entities, such as other state agencies, local governments, federal agencies, or business partners involved?

J.5 Mandatory External Deadline

Are there mandated deadlines external to the agencythat carry financial or political implications if they are not achieved?

J.6 Impending Legislation or other Externally Imposed Changes

Do you anticipate any changes during the course of the project that are beyond your control that you will need to adapt to? These could include legislative mandates or directives (state or federal).

J.7 Security

J.7.1 Information Confidentiality

Will the system support, access, transmit or store highly confidential information, such as financial, personal, or business data? Would theft or misuse of data subject the responsible government organization to litigation?

J.7.2 Communications & Access Security

Will the system have users who access it from outside the state's secure Wide Area Network, via the world wide web or other type of remote access?

J.8 Other

Please identify any other risk factors for your project and describe how you intend to manage them.

K Cost

Document any known or anticipated costs for this project. Costs are grouped into two types, Project Costs and Ongoing Costs.

Project costs can include studies, development, acquisition, customization, and/or major enhancements to existing systems.

Ongoing costs are those required to support the system once it has been implemented and is operational.

The first table in each detail section is used to define the number of staff required to support the project. The second table is used to define the costs. The final table, Funding Sources, summarizes the total cost to implement and operate the new technology and where the funding will come from. Additional cost details and supporting documentation may be provided in Appendix 4.

K.1 Project Cost

Table 1 – Project FTE

Category	Description
Base Agency Staff (FY 02-03)	Define the **number** of existing (FY02-03 Base) FTEs that will be working on the project. Partial FTEs can be shown for people who are devoted to the project part time.
New Agency Staff	Identify the **number** of new permanent staff as FTEs that will work on the project. Partial FTEs can be shown for part time employees.

Table 2 – Project Cost

Category	Description
Base Agency Staff (FY 02 – 03)	Identify the **cost** of existing staff that will be required during the project.
New Agency Staff	Identify the **cost** of new staff that will be required during the project.
Application Design	Includes creating the overall system architecture and design documentation.
Application Software License	The license fee for the software for the application system. Typically acquired either from a vendor as Commercial Off the Shelf (COTS), a transfer system or other licensing arrangement. This line item includes acquisition or 1st year licensing fees, depending upon the arrangement.
Other Software Licenses	COTS systems frequently integrate software from other vendors, such as database software, report writers, accounting packages etc. In addition, the new system may require additional server software licensing. Software licensing is a rapidly changing area and requires an up-to-date assessment.
Customization Charges	Frequently, Commercial Off the Shelf (COTS) and transfer systems require some modification to accommodate an agency's unique requirements. This customization is typically done by the vendor and is negotiated as a part of the purchase price. It is usually priced as fixed cost for each deliverable.

Category	Description
Additional Development	This includes all development that is not directly associated with the application software. Examples include developing interfaces to other systems and integrating other software packages into the overall solution.
Development Software Tools	Any software tools that the State would purchase for use during the development and testing of the solution.
Development Hardware	Any hardware required for the development effort.
Legacy Data Conversion & Integration	Systems often require data to be moved from one or more legacy systems into the new application database. This may involve costs from the software vendor as well as State technical personnel.
Documentation Development	This includes development of system documentation and user documentation.
Testing & Verification	This includes vendor /developer costs for testing the deliverable plus the State costs for people and testing materials.
Production System Hardware	Desktop, servers, web, imaging and other supporting equipment.
Communications Equipment & Line Charges	This includes incremental Local Area Network (LAN) or Wide Area Network (WAN) equipment needed to support the project. Also WAN line charges if this is a 1st time connection and WAN usage is dedicated to this system.
Application Deployment	This includes all costs associated with the rollout of the system.
Training	Training may include end users, system administrators and other technical support people who will be using/supporting the new system.
DoIT Technical Assistance	Identify technical services/assistance required from DoIT during the project. Consider: ▪ PC Tech Support ▪ Web Support ▪ Database Support ▪ Programming Support ▪ Network Engineering

Category	Description
Contractor Technical Assistance	Identify technical services/assistance required from a contractor during the project. Consider: ▪ PC Tech Support ▪ Web Support ▪ Database Support ▪ Programming Support ▪ Other services determined by agency
DoIT Facility Hosting	If the new system is to be hosted in DoIT's computer facility during development, identify the cost for this based upon DoIT's current rate schedule.
Project Management	Small projects should allocate at least 5% of total cost to project management. Large projects should allocate 10% – 20%. Include Technical Project Oversight supplied by DoIT.
Quality Assurance	Small projects should allocate at least 5% of total cost to quality assurance. Large or complex projects should allocate about 10%. Include QA provided by DoIT.
Reserve for Contingency	Develop a percentage of the margin of error for your solution estimate. 20% is typical for most projects, but you should determine what is right for your own project. Multiply this factor by the dollar amount of the estimate to generate the contingency factor in dollars.
Other	Use this category to describe any costs not already defined.

K.2 Ongoing Costs

Table 3 - Ongoing FTE

Category	Description
Base Agency Staff (FY 02-03)	Define the **number** of existing (FY02-03 Base) FTEs that will support the system during ongoing operations. Partial FTEs can be shown for people who are devoted to the project part time.
New Agency Staff	Identify the **number** of new permanent staff as FTEs that will be required to support the system. Partial FTEs can be shown for part time employees.

Table 4 - Ongoing Costs

Category	Description
Base Agency Staff (FY 02-03)	Identify the **cost** of any existing staff that will that will support the new technology during ongoing operation.
New Agency Staff	Identify the **cost** of new staff that will be required to support the new technology during ongoing operation.
Software Licensing, Software and Hardware Maintenance & Upgrades	The initial purchase of a software license may include maintenance and upgrades for some period of time. Identify the cost to maintain current versions of all software and to provide technical support. Identify any additional hardware maintenance and upgrades also.
DoIT Technical Support	Incremental support required from DoIT might include: ▪ PC Tech Support ▪ Web Support ▪ Database Support ▪ Programming Support ▪ Network Engineering

Category	Description
Contractor Technical Support	Incremental support supplied by a contractor would include: ▪ PC Tech Support ▪ Web Support ▪ Database Support ▪ Programming Support ▪ Other support determined by agency
DoIT Facility Hosting	If the new system is to be hosted in DoIT's computer facility, identify the cost for this based upon DoIT's current rate schedule.
DoIT WAN Charges	WAN line charges if this is a 1st time connection and WAN usage is dedicated to this system.
Other	Use this category to describe any costs not already defined.

K.3 Total Cost of Ownership

Table 5 – Total Cost of Ownership

Category	Description
Total Project Cost	This is the summary line from Table 2.
Total Ongoing Cost	This is the summary line from Table 4.
Total Cost of Ownership	This is the total of project and ongoing costs. It represents the total cost of ownership for the project.

K.4 Funding Sources

Table 6 – Funding Sources

Category	Description
Total Cost of Ownership	This is the total of project and ongoing costs. It represents the total cost of ownership for the project
Available Base Funding	Existing funding within your agency for this project.
Available Federal Funding	If federal funding is available indicate the amount.
Other Funding	If other sources of funding are available indicate the amount. Provide supporting detail of the sources and any restrictions on them in an appendix.
General Fund Required	This figure is calculated by subtracting all funding sources from the Total Funding Required. It is the amount of your funding request.

L Approval

L.1 Management Review

This project must be reviewed by appropriate agency staff prior to signature.

L.2 Approvals

The department director's approval is required, others are at the discretion of the department director.

APPENDIX 1 – FUNCTIONAL & SYSTEM REQUIREMENTS WORKSHEET

Attach the functional and system requirements you have developed.

APPENDIX 2 – CONNECTIVITY DIAGRAM

Provide a high level diagram of how the system will be connected. Include:

- Where the application will be installed (DoIT Facility server farm, DoIT Facility mainframe, other)
- Locations that will communicate with the application
- Any interfaces to other systems

APPENDIX 3 – ALTERNATIVES WORKSHEET

Purpose

The Alternatives Worksheet provides a template to evaluate existing system alternatives. A detailed Functional and System Requirements document is required in order to use this template (Appendix 1).

It is intended primarily for comparing existing application alternatives such as publicly developed transfer systems from other states, local jurisdictions or the federal government, or commercial off the shelf (COTS) software packages. Its purpose is to:

- Provide a single, consolidated and streamlined list of functions, features and technical issues that a system must satisfy. This list is based on the requirements that have been formally defined for the system.
- Compare technology alternatives using an established set of objective functional criteria to identify which alternative is the closest fit to business needs.
- Identify areas where alternatives are inadequate in meeting functional needs and therefore will need to be enhanced or modified. This is important in estimating the cost of the project. Once costs have been estimated for any required enhancements, the total cost of acquiring a COTS or transfer system can be established. This can then be weighed against the cost of custom development.

- Indicate the level of risk involved with adapting externally developed systems. The more modifications required, the higher the risk that the transfer or COTS system being considered will:
    - Become increasingly costly as more modifications are required;
    - Create difficulties in installing newer versions from the solution provider as regulations and business requirements change; and
    - Require ongoing maintenance for customizations not in the original system.
- Indicate areas where business processes may be impacted. For example, additional costs may be needed for training staff related to new procedures.

How to use the checklist

Before evaluating any alternatives, the first two columns of the checklist must be completed:

- **Identification Number –** Assign a unique, sequential identification number for each function or capability in the checklist.
- **Desired Function –** Provide a brief description of each function or capability required. Use this field to list the desired requirements for:
    - Business functions;
    - Reporting capabilities;
    - Desired system attributes;
    - Technical requirements; and
    - Other important requirements.

Then, for each alternative being evaluated, a copy of the worksheet completed through these first two columns should be made.

Next, fill in the remaining columns:

- **Feature Present** – Does the system have a feature to support the required business function? It should be answered as Yes or No.
- **Requires Process Change** – Would the business program need to change its business practices if this system were implemented? It should be answered as Yes or No.
- **Requires System Change –** Would modifications to the system be required to support the identified business function? It should be answered as Yes or No.
- **Requires New Feature –** Would new features be required in order for the system to support the identified business function? It should be answered as Yes or No.

- **Comments, Issues, Consequences, Risks –** This column provides an area to make notes about impacts which may result from required process changes, system modifications or system enhancements. If any of the three 'Requires' columns are 'Yes', additional comments will be useful to document the extent of the potential impact.

APPENDIX 4 - SUPPORTING COST DETAIL

Provide any additional information on cost in this section. Reference any existing documents you are attaching to this TIR.